Optical and structural characterization of air-annealed CdS film prepared by chemical bath deposition (CBD) technique.

ABSTRACT

The CdCl2 and (NH2)2CS were used to prepare CdS thin films, to be deposited, on glass substrate by chemical bath deposition (CBD) technique employing CdCl2 (0.005 M) and NH2)2CS (0.01 M) as a source of Cd2+ and S2-, respectively at constant bath temperature 70 oC. The films were air-annealed at 200 to 360 oC for 1 hour. XRD analyses reveal that the films were cubic along with two feeble peaks of orthorhombic CdSO4 at the annealing temperature 320 and 360 oC. The crystallite size of the films was increased from 59.2 to 67 nm with the increase of annealing temperature. Optical energy band gap (Eg) and absorption coefficient (α) were chosen as parameters of characterization, calculated from the transmission spectral data and were discussed as function of annealing temperature.

Keyword: CBD; CdS; Thin films; Air-annealing.